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मानक

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Jawaharlal Nehru

“Step Out From the Old to the New”

IS 3062 (1995): Crop Protection Equipment - Rocker Sprayer
[FAD 21: Farm Implements and Machinery]



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Satyanarayan Gangaram Pitroda

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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS 3062 : 1995

Reaffirmed 2006

भारतीय मानक

फसल संरक्षण उपस्कर — राकर फुहारा — विशिष्ट

(चौथा पुनरीक्षण)

Indian Standard

**CROP PROTECTION EQUIPMENT — ROCKER
SPRAYER — SPECIFICATION**

(Fourth Revision)

ICS 65.060.40

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**BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002**

October 1995

Price Group 3

**AMENDMENT NO. 1 MAY 2002
TO
IS 3062 : 1995 CROP PROTECTION EQUIPMENT —
ROCKER SPRAYER — SPECIFICATION**

(Fourth Revision)

(Page 4, clause 7.2) — Insert the following new clause after 7.2:

‘7.3 Mask, Hand Gloves and Safety Goggles

Each sprayer shall be provided with a set of mask, hand gloves and safety goggles.’

(FAD 59)

Reprography Unit, BIS, New Delhi, India

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AMENDMENT NO. 2 JUNE 2010
TO
IS 3062 : 1995 CROP PROTECTION EQUIPMENT —
ROCKER SPRAYER — SPECIFICATION
(Fourth Revision)

(Page 2, Fig. 1) — Substitute 'BASE' for 'BASE BOARD'.

(Page 2, clause 5.2, line 3) — Substitute '82 percent' for '80 percent'.

(Page 2, clause 6.1, Title) — Substitute '**Base**' for '**Base Board**'.

[Page 4, Table 1, col 2, Sl No. (viii)] — Substitute 'Base' for 'Base board'.

[Page 4, Table 1, col 3, Sl No. (i)] — Substitute 'Brass, Stainless steel, Steel' for 'Brass'.

[Page 4, Table 1, col 3, Sl No. (ii)] — Substitute 'Brass, Stainless steel, Steel' for 'Brass, Stainless steel'.

[Page 4, Table 1, col 3, Sl No. (iii)] — Substitute 'Brass, Stainless steel, Engineering plastic' for 'Brass, Engineering plastic'.

[Page 4, Table 1, col 3, Sl No. (iv)] — Substitute 'Brass, Stainless steel, plastic' for 'Brass, Aluminium alloy, Engineering plastic'.

[Page 4, Table 1, col 3, Sl No. (viii)] — Substitute 'Wood, Steel or Plastic' for 'Wood'.

[Page 4, Table 1, col 3, Sl No. (ix)] — Substitute 'Chrome tanned leather, PVC' for 'Chrome tanned leather, Synthetic Rubber, PVC'.

[Page 4, Table 1, col 3, Sl No. (x)] — Substitute 'Spring steel, Plastic' for 'Spring steel, Rubber, Engineering plastic'.

[Page 4, Table 1, col 3, Sl No. (xi)] — Substitute 'PVC' for 'Braided rubber, PVC'.

[Page 4, Table 1, col 3, Sl No. (xii)] — Substitute 'Synthetic Rubber' for 'Synthetic rubber, PVC, leather, Fibre'.

Amend No. 2 to IS 3062 : 1995

(Page 4, *clause 6.6, line 1*) — Substitute ‘All metallic threaded connections’ *for* ‘All threaded connections’.

(FAD 21)

FOREWORD

This Indian Standard (Fourth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Crop Protection Equipment Sectional Committee had been approved by the Food and Agriculture Division Council.

This standard was first published in 1965 and subsequently revised in 1970, 1974 and 1982. The standard has been revised again to incorporate certain improvements found necessary in the light of the modifications suggested by the testing authorities and the manufacturers. The revised version incorporates, among others, the following:

- a) Amendments No. 1 and 2 issued to earlier version of this standard,
- b) Editorial changes including updating of referred standards,
- c) Materials of components are modified and chemical composition of brass casting components as per relevant Indian Standard to ensure conformity,
- d) Provision of supplying a spray gun and adjustable nozzle, and
- e) Test for piston made of synthetic rubber.

The figures given in the standard are meant only for illustration of the components. These should not be considered as suggestive of any standard design.

For the guidance of the purchaser, an Annex A has been compiled. Besides quoting the number of this standard, the details desired in the Annex may also be stated.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

CROP PROTECTION EQUIPMENT — ROCKER SPRAYER — SPECIFICATION

(Fourth Revision)

1 SCOPE

1.1 This standard specifies material, performance, constructional and other requirements of rocker sprayer used for spraying pesticides.

1.1.1 The sprayers of this type are normally used with an average working pressure of 600 kPa (100 kPa = 1.019 7 kgf/cm² = 1 bar).

2 REFERENCES

The following Indian Standards are necessary adjuncts to this standard:

| IS No. | Title |
|---------------------------|---|
| 292 : 1983 | Leaded brass ingots and casting (<i>second revision</i>) |
| 2643 (Part 1) : 1975 | Dimensions for pipe threads for fastening purposes: Part 1 Basic profile and dimensions (<i>first revision</i>) |
| 3652 : 1995 | Foot sprayer (<i>fourth revision</i>) |
| 7201 (Part 1) : 1987 | Method of sampling for agricultural machinery and equipment : Part 1 Hand tools and hand operated/ animal drawn equipment (<i>first revision</i>) |
| 8480 : 1977 | Glossary of terms relating to crop protection equipment |
| 10134 : 1994 | Methods of tests for manually operated sprayers |
| 10216 : 1988 | Pipe threads where pressure-tight joints are not made on the threads—verification by means of limit gauges (<i>first revision</i>) |

3 TERMINOLOGY

For the purpose of this standard, the following definitions in addition to those given in IS 8480 : 1977 shall apply (*see also* Fig. 1 and 2).

3.1 Handle Extension

A rod or tube, one end of which is attached to the handle lever to enable the sprayer to be

operated with hand while the sprayer itself remains on the ground.

3.2 Handle Lever

A lever, connecting the handle extension, piston rod and frame to operate the piston with hand.

3.3 Handle Lever Pivot

A pivot for connecting the handle lever with frame.

3.4 Stroke

The maximum travel of the piston rod in one direction when the handle lever moves from a maximum of 25° forward to a maximum of 35° backward (that is, total of 60° or less), a vertical plane passing through the central line of the handle lever pivot.

3.5 Total Mass — *See* 3.6 of IS 3652 : 1995.

3.6 Valve Assembly — *See* 3.7 of IS 3652 : 1995.

4 MATERIALS

4.1 The material of construction of various components of the sprayer shall be selected from col 3 of Table 1. The material other than brass casting may conform to the relevant Indian Standard, however brass casting components shall conform to chemical composition as specified in IS 292 : 1983. (Grade shall be declared by the manufacturer.) Some of the relevant Indian Standards are given in Annex B of IS 3652 : 1995 for guidance.

4.2 The material for spray lance, nozzle, cut-off device, spray gun and its components shall be as given in Table 1 of IS 3652 : 1995.

4.3 All metallic parts coming in contact with the pesticides should preferably be of the same material to minimize bimetallic corrosion.

4.4 The material used for different components shall be declared by the manufacturer in the manual (*see* 7.1).

5 PERFORMANCE REQUIREMENTS

5.1 Discharge Rate

When tested in accordance with the method given in 6.1.2 of IS 10134 : 1994 the pump shall

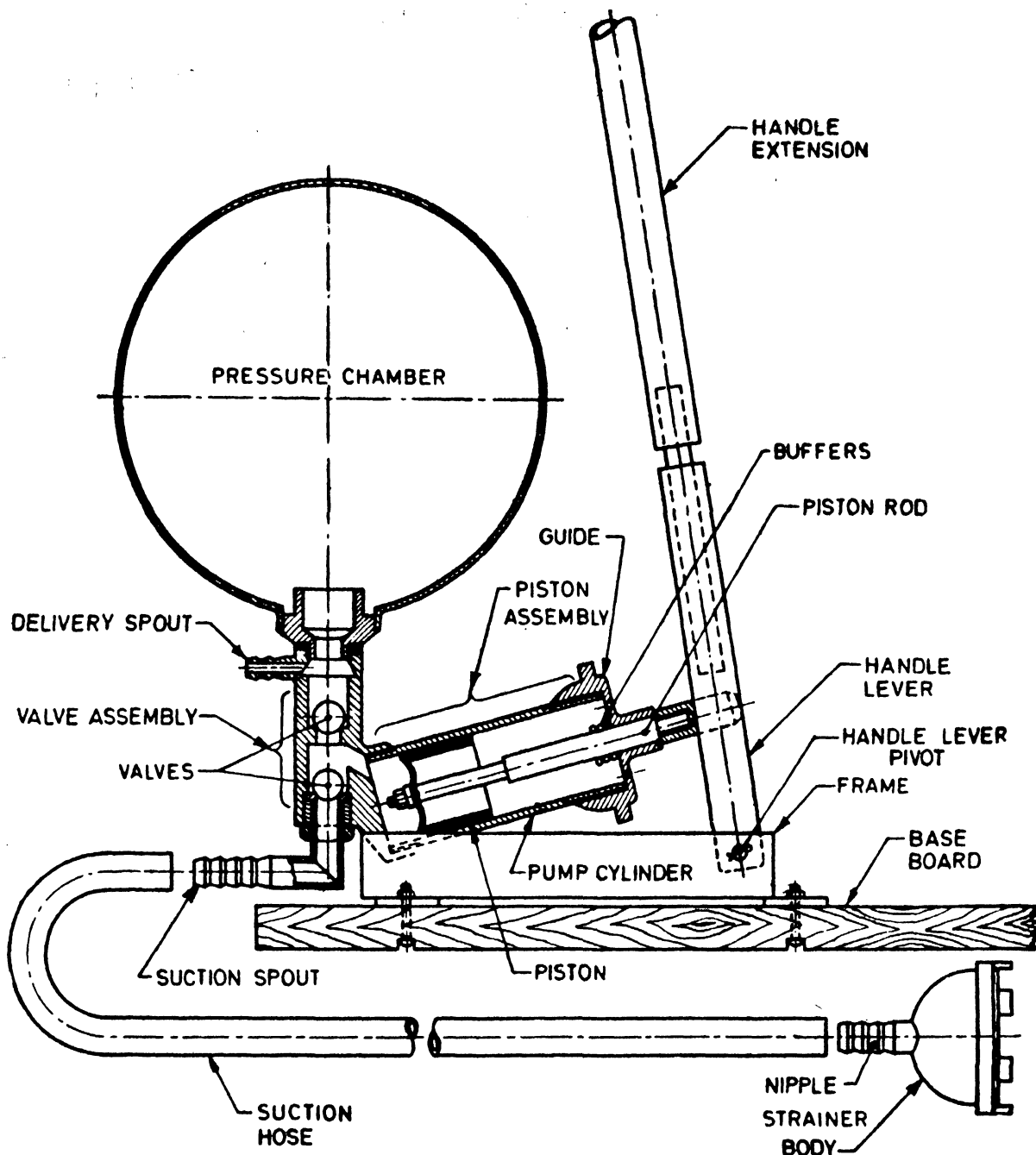


FIG. 1 ROCKER SPRAYER

be capable of discharging a minimum of 1 200 ml of water per minute.

5.2 Volumetric Efficiency

When tested in accordance with the method given in 6.2 of IS 10134 : 1994, the volumetric efficiency shall be not less than 80 percent.

5.3 Endurance Test

The sprayer shall withstand the test prescribed in 8.1 of IS 10134 : 1994.

6 CONSTRUCTIONAL REQUIREMENTS

6.1 Base Board

The length, width and thickness of the board shall be 750 to 900 mm, 140 to 220 mm and 20 to 30 mm respectively. Provision shall be made on board for fixing the frame.

6.2 Frame

It shall withstand the test prescribed in 7.8 of IS 10134 : 1994.

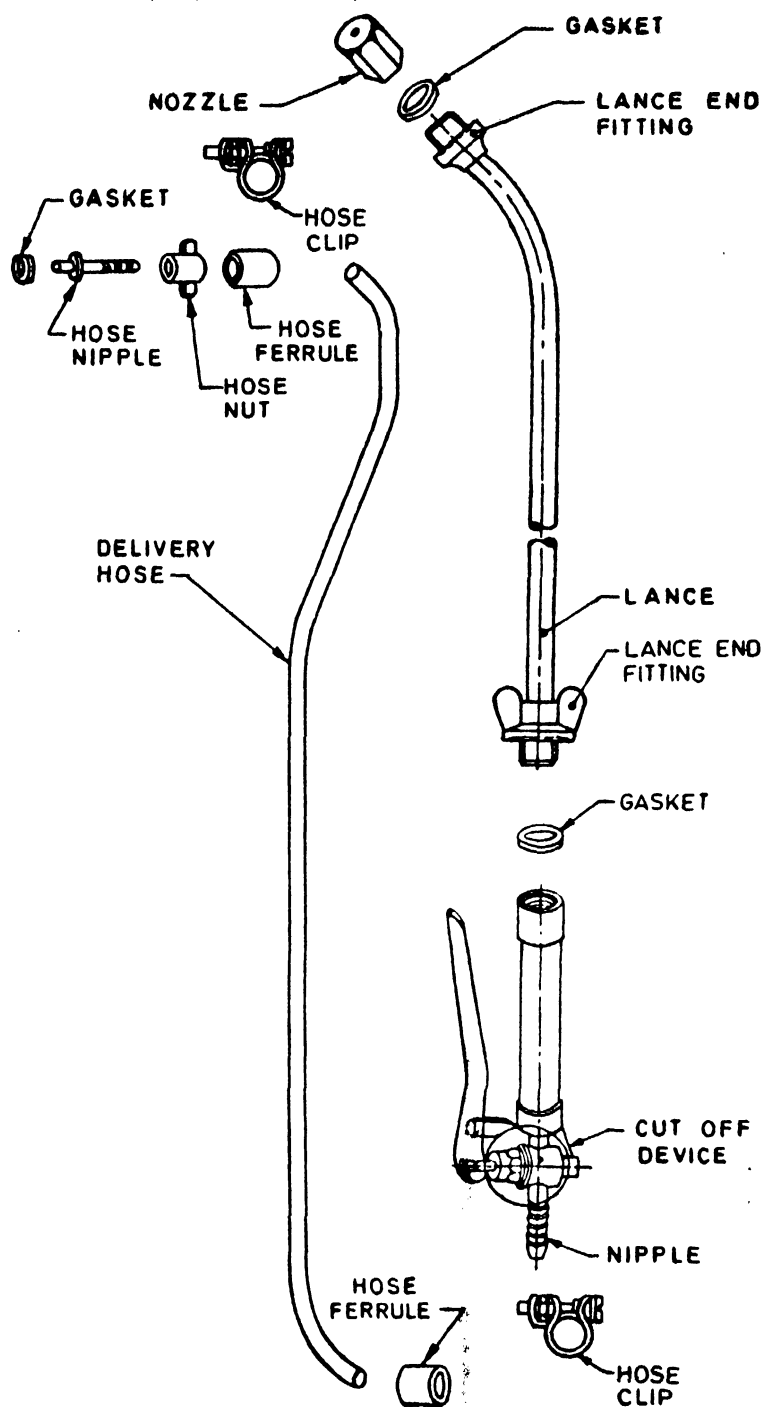


FIG. 2 DISCHARGE LINE OF SPRAYER

**Table 1 Materials of Construction of
Various Components
(Clauses 4.1 and 4.2)**

| Sl No. | Components | Material |
|-----------|---|--|
| (1) | (2) | (3) |
| i) | Pressure chamber, pump cylinder, piston rod guide, suction spout, Delivery spout valve seat, spreader | Brass |
| ii) | Piston rod, valve | Brass, Stainless steel |
| iii) | Hose nut | Brass, Engineering plastic |
| iv) | Hose nipple, strainer body | Brass, Aluminium alloy, Engineering plastic |
| v) | Strainer | Brass, Stainless steel, plastic |
| vi) | Frame, handle extension, handle lever | Steel |
| vii) | Hose ferrule/clip | Brass, steel |
| viii) | Base board | Wood |
| ix) | Piston | Chrome tanned leather, Synthetic Rubber, PVC |
| x) | Buffer | Spring steel, Rubber, Engineering plastic |
| xi) | Hose | Braided rubber, PVC |
| xii) | Gasket | Synthetic rubber, PVC, leather, Fibre |

NOTES

1 All the components mentioned above may not be present in a particular design.

2 The components other than those listed in the table and coming in direct contact with the pesticide shall be of corrosion resistance material.

6.3 Handle Lever and Extension

The height of the handle lever with extension shall be not less than one metre when measured vertically from the base of the frame. The grip portion of the lever or extension shall be 25 to 30 mm in diameter.

6.3.1 The lever or extension shall not foul with any part of the sprayer. The angular movement of the handle lever and extension shall be not more than 25° forward to a maximum of 35° backward (that is, total of 60° or less) from a vertical plane passing through the central line of the handle lever pivot.

6.3.2 The handle lever and extension shall withstand the test prescribed in 7.8 of IS 10134 : 1994.

6.4 Pump

Pump shall conform to the requirements given in 6.3.1 to 6.3.5 of IS 3652 : 1995.

6.5 Pressure Chamber

The pressure chamber shall have a minimum effective volumetric capacity of 16 times of the piston displacement.

6.5.1 The pressure chamber shall withstand the test prescribed in 7.1 of IS 10134 : 1994.

6.6 Threaded Connections

All threaded connections on the sprayer and its components shall conform to the requirements given in 6.5 of IS 3652 : 1995.

6.7 Suction and Delivery Spout

Suction and delivery spout shall conform to the requirements given in 6.6 of IS 3652 : 1995.

6.8 Suction Line

Suction line shall conform to the requirements given in 6.7 of IS 3652 : 1995.

6.9 Discharge Line

Discharge line shall conform to the requirements given in 6.8 of IS 3652 : 1995.

6.10 Gasket

Gasket shall conform to the requirements given in 6.9 of IS 3652 : 1995.

6.11 Total Mass

The total mass of the sprayer (see 3.5) shall be not more than 11.5 kg.

7 OTHER REQUIREMENTS

7.1 Manual

Manual shall conform to the requirements given in 7.1 of IS 3652 : 1995.

7.2 Spare Parts

Spare parts shall conform to the requirements given in 7.2 of IS 3652 : 1995.

8 WORKMANSHIP AND FINISH

Workmanship and finish shall conform to the requirements given in 8 of IS 3652 : 1995.

9 MARKING AND PACKING

9.1 Marking

Each sprayer shall be marked with the following particulars:

a) Manufacturer's name or recognized trade-mark, and

b) Batch or serial number.

9.2 BIS Certification Marking

Each sprayer may also be marked with Standard Mark.

9.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or processors may be obtained from the Bureau of Indian Standards.

9.3 Packing

Each sprayer shall be packed, as agreed to between the purchaser and the supplier, for safe handling in transit.

10 SAMPLING FOR LOT ACCEPTANCE

10.1 Unless otherwise agreed to between the purchaser and the supplier, sampling of the sprayers for lot acceptance shall be done in accordance with 3 of IS 7201 (Part 1) : 1987.

11 METHODS OF TESTS

11.1 The requirement of this specification shall be tested in accordance with the relevant clauses of IS 10134 : 1994.

11.2 Tests for various requirements given in the order below shall be followed by the testing authorities:

- a) Dimensional and visual check (*see* 6.1, 6.3, 6.3.1, 6.6, 6.7, 6.8, 6.9 and 9.1);

- b) Mass (*see* 6.11);
- c) Discharge rate (*see* 5.1);
- d) Volumetric efficiency (*see* 5.2);
- e) Endurance test (*see* 5.3);
- f) Dimensional and visual check (*see* 6.4 and 8);
- g) Pump cylinder test (*see* 6.4);
- h) Pressure chamber test (*see* 6.5 and 6.5.1);
- j) Hose and hose connection test (*see* 6.9);
- k) Test for frame (*see* 6.2), handle lever and extension (*see* 6.3.2) and piston rod (*see* 6.4);
- m) Test for nozzle (*see* 6.9);
- n) Test for lance (*see* 6.9);
- p) Test for cut-off device (*see* 6.9); and
- q) Test for piston and gaskets; if made of synthetic rubber (*see* 6.4 and 6.10).

NOTES

1 Test for hose and hose connection, lance and cut-off device strength may be connected at one time.

2 The gasket and piston test shall be conducted with new set of gaskets and piston provided with the sprayer.

ANNEX A

(*Foreword*)

SPECIFICATION SHEET

- | | |
|--|---|
| 1. Name of the purchaser. | 5. Type of cut-off device (<i>see</i> 6.9). |
| 2. Preference of material for various components (<i>see</i> 4.1). | 6. Type of lance (<i>see</i> 6.9). |
| 3. Length of suction hose (<i>see</i> 6.8). | 7. Type of nozzle (<i>see</i> 6.9). |
| 4. Length of delivery hose (<i>see</i> 6.9). | 8. Type of spray gun (<i>see</i> 6.9). |
| | 9. Spray parts needed (<i>see</i> 7.2). |

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This Indian Standard has been developed from Doc No: FAD 25 (422).

Amendments Issued Since Publication

| Amend No. | Date of Issue | Text Affected |
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